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ABSTRACT

The research described in this paper examined nonverbal factors in the education of Chinese American children. Data on interpersonal distance, time management, and the use of space in relation to activity and grouping; and interpersonal synchrony influenced the behavior and response of students. The investigation also explored associations between language of instruction and these variables, as well as the effects of variations of classroom ethnic composition. Research methods involved analysis of research films of classrooms and film interviews with people associated with the classrooms and students. Findings showed that Chinese American students responded best to situations in which there were close interpersonal distances, a slow to moderate pace, arrangements that did not isolate individuals, and activities that involved group processes. They responded particularly well in situations with these characteristics that also involved considerable contextualization of subject matter and the use of time frames significantly longer than the American school norm. Such situations were characterized by high levels of interpersonal synchrony. These patterns were closely associated with use of Cantonese language in the classroom. Size of groups did not appear to be a significant factor, but the response of Chinese American students was adversely affected when proportions of non-Chinese students rose above a certain point. (Author/CMG)

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NONVERBAL FACTORS IN THE EDUCATION OF CHINESE AMERICAN CHILDREN: A FILM STUDY

by

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U.S. DEPARTMENT OF EDUCATION
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ABSTRACT

This research examines some nonverbal factors that affect the schooling of Chinese American children in bilingual/bicultural classrooms. The purpose was to define how such variables as interpersonal distance, arrangement and use of space, pace of participants, size of groups, use of time, and interpersonal synchrony influenced the behavior and response of students. The investigation also explored associations between language of instruction and these variables as well as the effects of variations in ethnic mix in the classrooms. Research methods involved analysis of research film of classrooms and film interviews with people associated with the classrooms and students.

The research indicates Chinese Americans students responded best to particular combinations of these variables. Specifically, they responded better to situations in which there were close interpersonal distances, arrangements that did not isolate individuals, activities that involved group processes, and in which the pace of participants was slow to moderate. Chinese American students responded particularly well in situations with these characteristics that involved considerable contextualization of subject matter and the use of time frames significantly longer than the American school norm. Such situations were characterized by high levels of interpersonal synchrony. These patterns were closely associated with use of Cantonese language in the classroom. Size of groups did not appear to be a significant factor but the response of Chinese American students was adversely affected when proportions of non Chinese students rose beyond a certain point.

ACKNOWLEDGEMENTS

The fieldwork and analysis on which this report is based has received assistance from a number of individuals and institutions.

The work was originally suggested by George K. Woo and the initial fieldwork carried out with his advice and assistance. Mr. Woo also served as a consultant in the analysis of the full film collection and provided access to, and assistance with a computer during the analysis and report writing stages of the project. Thanks must be given to the staff and children of the Chinese Bilingual/Bicultural Pilot Program, San Francsico Unified School District, in particular Roger Tom, Laureen Chew, May Lui, and Jones Wong, all of whom not only assisted in the initial fieldwork but also in the final analysis of the film records.

Additional filming was done with the co-operation of Wah Mei School and its staff, children, parents, and board of directors. Special assistance was provided by the school Director, Irene Dea Collier, and by the teachers, Doreena Lee, Betty Nacimento, Helen Lee, and Grace Lam.

The analysis was much improved by the advice and insights of Dr. Edward T. Hall, Dr. Ray Barnhardt, and my father, John Collier. Stephen and Laura Wallace provided valuable understanding of the dynamics of cross cultural education that they could see in the film.

The report reflects not only my own work but also the rich understanding and insights of my wife, Irene Dea Collier who has also attempted with fair success to improve on the written report with careful and always correct editorial comments.

Portions of the initial fieldwork were carried out with the financial assistance of the Chinese Bilingual In-service Teacher Training Project, Asian American Studies Program, San Francisco State University. That project was funded by Title X, U.S. Office of Education. The material in this report is also based on work funded, in part, by the National Institute Of Education under Grant No. NIE-G-81-0115. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the author and do not necessarily reflect the views of the Institute or the Department of Education.

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INTRODUCTION

This report presents a summary of the findings of an investigation of nonverbal factors that affect the classroom education of Chinese American children in bilingual/bicultural classrooms. The investigation is based primarily on analysis of motion picture research film of Chinese bilingual/bicultural programs in northern California.

The focus of the report is on nonverbal variables as they affect interactions among students and staff. The concern is with communication in the classroom and with the role of a variety of nonverbal factors in the communication process. The emphasis on nonverbal phenomena is not intended to suggest that other factors are not equally important but is simply intended to draw attention to variables not always considered in the examination of classrooms. In reality, verbal and nonverbal factors are interlocked with each other as well as with a host of other factors in the larger context of classroom, school, and community.

The research assumes that learning in the classroom is dependent on communication. Visual evidence can define the degree to which it is possible for communication to take place and can provide information of the qualitative character of that communication (J. Collier 1973). Good communications require interactions between people that are reflected and affected by aspects of behavior that can be seen.

The research had its immediate origin in 1975 when the Asian American Studies Program at San Francisco State University became involved with an in-service teacher training project in cooperation with a Chinese Bilingual/Bicultural Pilot Project. The principal investigator, Malcolm Collier, was asked by the inservice training project director, George Woo, to undertake a film documentation of the elementary classrooms in the Bilingual/Bicultural Pilot Program. Although no funds were available for analysis of these film records, the field recording process was carried out with eventual research usage as the goal. Field procedures are described in the methodology section of this report.

In the following years a variety of resources were used to to enlarge the film file of Chinese bilingual/bicultural classrooms. Preliminary organization of the film records was carried out as time and finances permitted. Finally funding was obtained from the National Institute of Education for analysis, with this report a product of that effort.

The research project involved analysis of film records of preschool, elementary, and secondary level classrooms. The focus of this report, however, is on the findings concerning the elementary level classrooms. The research data from other levels has been used to provide perspective on the elementary classrooms examined in this report.

Although this research is concerned specifically with the classroom experience of Chinese American children, the findings have more general applications. The investigation is ultimately an examination of cross cultural schooling in the United States and of some of the dynamics of that cultural process. It is hoped that the discussion presented here may lead people to examine both Chinese American education and other school situations with additional perspectives and concerns.

METHODOLOGY

The terminology and methods used in this research are not unique but they may be unfamiliar to some readers. A review of these is presented in this section so that the findings and conclusions of the research can be better understood.

1. Terminology

This reports includes discussions of participants in the classrooms in terms of ethnic identity. In the context of this report the terms Chinese, Latino, Black, Anglo, and Asian are used in a particular sense. Anglo refers to people of Euroamerican descent and cultural background, generally considered to make up the mainstream of American society. The term Black is used in the modern American sense of the term; Latino is used for people with ties of culture and/or descent with the Spanish speaking peoples of the Americas. Chinese is used for people of Chinese descent, permanently resident in this country regardless of place of birth, although some distinction is made at times between American and foreign born. Asian refers to all people with connections with the various societies of Asia and "other Asian" applies to all those in this classification who are not Chinese.

Repeated reference is made to "units", a term that was developed for purposes of analysis. A unit is a period of time, as recorded in the film record, in which the same people are engaged in the same activity. Any significant change in the identity of the participants or in their activity is defined as a change to a new unit. Units are often synonymous with a lesson period.

The adults in the film record are discussed in the report under a variety of titles, depending on their role. "Staff" is the cover term for all adults who are employed in the classroom. A "teacher" is a certificated person responsible for the particular classroom while an "aide" is anyone who works in the classroom under the supervision of the teacher. "Specialists" are traveling school employees who go from classroom to classroom for specialized purposes. Finally, the term "instructor" is used for anyone who takes on that role with the students, regardless of their formal position.

Curriculum is discussed as various points in the report and refers to more than simply the subject content. Curriculum is considered to include the temporal structure of lessons, the sequence and character of activities, and manner in which the instructor presents the lesson.

References are made to "ratings". In the analysis of the film records every unit was rated on a six point scale from "excellent" to "poor". The rating reflected direction and duration of student attention, intensity of involvement, amount of distracted behavior, and the degree of synchrony in interpersonal behavior on a nonverbal level.

The term "synchrony" (sync) is used from time to time. This term refers to the manner in which people synchronize their behavior and movements when interacting with each other. The concern in this report is with indicators of synchrony such as simultaneous, coordinated movements, shared pace or beat, and unified direction of attention. The nature and significance of synchrony is discussed in more detail in a separate section of the report.

2. Field methods:

The focus of fieldwork was on obtaining film records that could provide information on behavior and interactions in the classrooms as well as the general character of the school program. Procedures for filming based on previous experience with film and video work in school settings (M. Collier 1979, J. Collier 1973, 1967).

Actual filming was preceded by meetings with school staff in which the interests of the investigator were explained and the procedures to be used in filming discussed. These meetings included discussions of the concerns and interests of the staff in the general subjects areas of the research. The investigator met individually with teachers to make sure that any concerns that they might have about the filming process could be discussed and to arrange the day on which filming would be done. Participation was voluntary, consequently two teachers and two aides were not filmed.

The principal investigator shot all the film footage using an "ethnographic" approach. Specifically, this approach involved combined recording of defined concerns with systematic recording of the general character of events. Among the specific concerns were the following: First, that there be a consistent record of activities in each classroom for the duration of a complete cycle. In every case this cycle was defined as the complete school day for that group of children. A second concern was with making a systematic record of the interaction between students, teachers, and aides. This subject was a major concern of most school staff members and also the primary interest of the principal investigator. It was considered crucial that there be a comparative record of different classrooms, different students, and different teachers with the belief that the most important findings of the research would result from the comparative analysis of different participants and situations.

Each classroom was observed for a full school day and a visual record was made of the observations. These records might be considered "visual notes" that include a mixture of both predefined subjects and unforseen events and occurances. Certain categories of subject matter were filmed in every classroom even when they did not appear to be significant. Regular sweeps of room activities were made in the same manner at regular intervals. Shots of wall clocks or time slates were made to place records in their correct temporal context. These regularized procedures were carried out in order to obtain records not only of what was seen by the investigator but also to record what was not seen, to obtain information on what was not known.

To assist in this goal, time-lapse footage was shot in most classrooms. These time-lapse records were shot at three frames per second in the earlier footage and six frames per second in later work. They provide relatively unbroken records of classroom activities and serve to provide comparative balance to the more selective but generally richer footage shot at normal speed. In analysis these time lapse records could be projected at three or six frames a second and provide a reasonable approximation of normal time and movement.

Sync sound recordings were made in conjunction with much of the film, using experimental equipment. These records proved to be difficult to use and were not utilized extensively in the research analysis. Separate, unsynchronized, sound records were made on tape of most classrooms. These were used in analysis to check on verbal content and

style. Because the research was primarily concerned with nonverbal aspects of the classrooms, sound was used for supplementary information.

Written notes were kept to record times, places, general observations, names, subject matter and other information needed to maintain the film context. None of the film was edited after processing. It was spooled together in chronological order on separate reels for each classroom. Work prints were made from the originals. The analysis involved examination of these complete film records.

3. Methods of Analysis

The analysis of the film extended over a number of years of intermittent work and one final year of concentrated analysis. The general process involved a movement from open-ended handling of the film data to more focused examination of specific subjects.

During the preliminary years the film was logged and preliminary general analysis was made of most of the film record. This preliminary analysis involved repeated viewing of the footage and making written descriptions of behavioral patterns and general characteristics of the school program. The film was screened and discussed informally with a number of people, some involved with the programs recorded on film and others expert in the analysis of visual data.

It was at this stage that funding was obtained for a concentrated analysis of the film data. This effort began with a review of the analysis already completed. It appeared appropriate to carry out a new, open-ended review of the whole collection of film. This effort involved viewing both the film records of the Chinese Bilingual/Bicultural Pilot Program, which are the focus of this report, and all the additional film and video records of secondary and preschool bilingual/bicultural programs. The running time of these records was in excess of ten hours of film and video. An inventory of the audio tapes was also made at this time.

Based on this open ended immersion in the film record, a written overview was prepared that included descriptions of each classroom, the teaching style of each instructor, the response of the students, and a general analysis of the factors affecting classroom behavior. The overview identified most of the significant factors discussed in this report.

The findings of the overview were then used to define the focus for detailed analysis. A standardized guide for analysis containing specific questions and viewing categories was designed and tested on selected footage. This testing resulted in a decision to redefine the unit of analysis in the film sample. Previously, the unit of analysis had been the "class", all footage of a particular classroom. The overview and preliminary testing of the viewing guide showed this this unit to be too generalized for meaningful analysis.

Consequently, a new unit of analysis was defined which included any period of time or process as seen on film in which the same people were engaged in the same activity. Any significant change of participants or activity was defined as a shift to a new and different "unit" for analysis purposes. The viewing guide was redefined into a "unit analysis sheet" from which 30 categories of information could be obtained for each unit. An example of the unit analysis sheet and a list of the 30 categories of information form an appendix to this report.

These categories ranged from purely descriptive or quantitative to very qualitative evaluations of interactions in the film records. The

purpose of the standardized viewing sheet was to provide a structure for uniform examination of every unit for the same range of variables so that meaningful comparisons could be carried out. This comparative analysis was expected to help detail the general patterns found in the overview as well as provide evidence for other patterns not already perceived. Both goals were attained.

Because of the redefinition of the unit of analysis, it became necessary to identify and locate all the units in the film records by frame numbers. This was done with a viewer and resulted in the identification of over 230 "units" in the film sample. Basic information for the unit analysis sheets was obtained and recorded at the same time.

All the film was then screened at normal and then at 1/2 normal speeds to derive the information necessary to fill in the qualitative portions of the unit analysis sheets. This "closed analysis" was originally intended to involve only selected portions of the film record but the overview process described above suggested that all the footage would have to be examined if reliable comparative statements were to be forthcoming.

The result was a tremendous increase in the time required to carry out analysis. The film sample was subsequently divided into three portions, each somewhat complete in itself. These were; a) the film record of the K-6 bilingual/bicultural classrooms, b) film records of the community based bilingual/bicultural preschool program, and c) supplementary records of miscellaneous secondary bilingual classes, ESL classes, and suburban classrooms. This report concentrates on the K-6 grouping although the discussion of those classrooms is significantly shaped by the full research effort.

When the unit analysis of the K-6 film data was complete the research was faced with the problem of evaluating the significance of the data obtained on the units in this grouping, totalling 157 in number. After several trial runs a decision was made to use a small computer to handle the information resulting from detailed analysis.

The information of the unit analysis sheets was coded and entered into computer records. An initial run of the data was made which provided a statistical picture of the full 157 units in the K-6 portion of the film records. Subsequently the data was sorted into comparative groupings that were examined for evidence of associations and contrasts of a variety of behavioral variables. Further sorting and analysis was carried out to define the significance and characteristics of these associations.

The process was time-consuming because of the interconnected character of most of the variables, as is commonly the case in nonverbal research. Most of the quantitative information in this research derives from this stage of analysis. The unit analysis and cross comparisons carried out with the computer provided detailed information on patterns perceived in the more open portion of the research and revealed other new patterns.

As each stage of analysis was completed the results were written up in narrative form, summarizing the patterns and significance of different variables. Some of the information was used to produce graphs, some of which are presented in the report. The graphs proved to be one of the more valuable results of detailed unit analysis.

Equally important, the unit analysis involved a very careful and focused viewing of the film records. The film was seen in a different

perspective than in the open-ended viewing and additional information obtained. Careful notes were kept of these and they were incorported into the narrative notes on each stage of the detailed analysis.

Film feedback and interviews were also part of the analysis process. The film was screened for a number of people familiar with the school setting and these people were were then interviewed. The procedure was first to screen the film of their classroom with a minimum of explanation. Teachers were asked to report anything important that they saw and to stop the projector at any time they wished, either to point something out or to back up and look at a section again. Notes were made of their comments and the portions of the film with which their comments were associated. The film and class would be discussed in detail and an interview carried out covering both predefined topics and subjects raised by the teachers during screening. A second and sometimes a third viewing of the film would be made, this time with the projector controlled by the investigator and the teacher's attention directed to particular aspects of the classroom that were considered possibly important as indicated by film analysis completed to that point. Film interviews with teachers generally lasted three to four hours.

Film interviews were also conducted with a former student in the bilingual program and with an educator with long experience both in Navajo bilingual/bicultural education and in nonverbal studies of classrooms. His views were solicited in order to get additional perspective on the subject. The interview with the student was similiar to that of the teachers. The interview with the outside educator involved looking at a wide range of different classrooms and discussing each in detail, in all the interview lasted more than eight hours.

All the information and knowledge obtained from these various stages of analysis were drawn from to produce the findings which are reported here.

THE SCHOOL SETTING

Any process takes place within a larger context. This section presents descriptions of the school setting and the character of the participants of that setting. These descriptions derive directly from the film record, interviews and observations. They present the situation as it was at the time of filming and do not deal with previous or subsequent history. They are presented to provide the reader with a larger context within which to place the details of this report.

This report focuses on twelve classrooms from kindergarten through sixth grade in which are seen 14 certificated teachers, 12 aides, and approximately 260 students. Ten of the twelve classrooms were part of a Chinese bilingual/bicultural pilot program in a large urban public school system. One of the two remaining classes in the sample was linked to the pilot program but was not in the public school system. It was a fourth grade class in a parochial school. The twelfth class in the sample was a public school kindergarten classroom, somewhat bilingual but not part of the pilot program. The classrooms in the sample can be described, therefore, as being in three major groupings. Each has its own particular setting and characteristics.

1. The Bilingual/Bicultural Pilot Program Classrooms

The pilot program was federally funded under Title VII and involved classrooms from first through sixth grades in a large public school district. Classrooms in the program were under the joint administration of a local school principal and a program manager. In addition to the public school classes the program involved assistance to bilingual classes in a nearbye parochial school, discussed separately.

The program shared two school sites with other primary and elementary programs. One site, which housed grades one through three, was a large elementary school in Chinatown. The school population at this site was heavily Chinese with non-Chinese students bussed in as part of an attempt to meet desegregation guidlines.

The second site housed grades four through six and was located at some distance from the Chinatown area. Students in the bilingual/bicultural program who wished to continue in the program after third grade had to be bussed to this school. This situation was also a result of desegregation guidelines. The school population at this second site was largely non-Asian and the Chinese students in the bilingual/bicultural program comprised the major part of the school's Asian enrollment.

The pilot program had two classrooms at each grade level, each with a teacher and an aide, for a total of twelve classrooms in the public school component of the program. All but two of the classrooms were filmed. The enrollment was about twenty five students in each classroom. These classrooms were paired, with one usually being designated an English and language arts emphasis classroom and the other a math and Cantonese emphasis classroom. There was always some type of switching of students between paired classrooms during the course of the day except in sixth grade where students were in one classroom for one full day and then on the other the next. Although the program was bilingual and bicultural the film record shows a curriculum with heavy emphasis on English language arts together with math and the other standard components of American education.

The pilot program classroom enrollment was heavily Chinese. Most students were either immigrants or were children of recent immigrants.

There were very few children of American born Chinese families. Twenty to twentyfive percent of most classes were students from other backgrounds; Anglo, Black, Latino, or other Asian Americans.

There was a relative decline the number of Chinese American students in the fourth through sixth grades. In these classes Chinese American enrollment was between 52% and 65%. This shift was the direct result of the location of the upper elementary bilingual classes in a generally hostile school setting, remote from any area with significant Chinese American population. The shift was fairly recent at the time the film was shot and the Pilot Program was still making adjustments to the difficulties associated with the move. Interview data indicated that this relative drop in Chinese American enrollment after third grade did not take place in later years.

The ethnic mix of the classrooms resulted from several factors. The school district saw the bilingual/bicultural program primarily as an assistance program for students from non-English speaking homes, particularly in light of the Lau vs. Nichols court decision. Consequently, there was a priority system affecting enrollments in the bilingual/bicultural classrooms. According to interview data, first priority was for students from non-English speaking Chinese homes, particularly immigrant students. Second priority went to non-Chinese students and third priority to English speaking Chinese students. In all cases, enrollment was dependent on parental request or permission. The result of this system was that there were very few English speaking Chinese American students.

The teachers in the program had all received their training in the United States and most were between twentyfive and forty years old. Of those filed, two were Anglo, five were American born Chinese, two were from Hong Kong and one was from Singapore. In terms of the instructional "units" that were used in analysis, 62% were taught by American born Chinese Americans, 13% by foreign born Chinese Americans, and 24% by Anglo teachers. (These percentage figures include the parochial and kindergarten classrooms as well as the ten classrooms in the public school pilot program.) All but two of the teachers were women.

Every classroom had an aide. In some classrooms there were visiting specialists. Of the ten aides seen in the film of the pilot program classrooms, two were Anglos, two were American born Chinese, five were from Hong Kong, and one was from Taiwan. All aides had received varying amounts of in-service training in the United States. Many of the foreign born aides had worked as aides, teachers, or as principals prior to coming to the United State. The aides from Hong Kong and Taiwan were generally responsible for the Cantonese language curriculum and instruction. The Anglo and American born Chinese aides had all their educational experience and training in the United States. They were generally younger and less experienced than the other aides and their responsibilities in the classrooms considerably less extensive.

2. The Parochial School Classroom

The film sample included a fourth grade class from a parochial school. The class was in fact part of the bilingual/bicultural pilot program although it was administratively separate from the public school system. The program provided one teacher, one aide and some materials for the bilingual portion of the parochial school's program.

The parochial school was located in the Chinatown area on a site that had been a long time mission school. The school had classes from

kindergarten through eighth grade and offered a fairly standard curriculum with strong emphasis on basic skills. Classes were quite large and teaching styles somewhat more "traditional" than in the public school, in part because of the large classes.

The enrollment was almost exclusively Chinese with classes ranging from kindergarten through eighth grade. Students came from all over the city and were a mixture of American and foreign born Chinese. The classroom was the only one in the sample with a large proportion of Chinese students from homes in which English as well as Cantonese was spoken.

The fourth grade parochial school class enrolled fifty students in one class room with two teachers and one aides. The class had the use of a small side room because of the large enrollment. The head teacher was a lay person, an American born Chinese with all teacher training and experience in the United States. The teacher and aide provided by the pilot program were both from Hong Kong.

3. The Kindergarten Classroom

A twelfth classroom in the film sample was a kindergarten class housed in another school, it was described as being somewhat a bilingual class and was filmed at the request of the Pilot Program staff.

It was located in a public school in the same school district as the pilot program but in another part of the city that also had a large Chinese American population and school enrollment. The curriculum was standard American kindergarten with no bilingual or bicultural component on the day in which film took place.

The kindergarten class enrolled twenty students in a half day morning session. The ethnic mix was varied with the highest proportion of non-Asian students of any class in the sample. Less than half the students were Chinese.

The staff was composed of a teacher and an aide. On the day that filming was carried out the teacher also had the assistance of her daughter, a junior high school student who worked in the class one day a week. The teacher was an American born Chinese with all training and experience in the United States. The aide was an Anglo with some in-service training.

4. Other Classrooms

The report concentrates on analysis and discussion of the classrooms described above. The full research effort also included film records of a community based Chinese bilingual/bicultural preschool and some footage of secondary level bilingual classrooms. The analysis of these classrooms, while not reported specifically in this report, provided important qualifying perspectives on the findings.

RESEARCH FINDINGS

This section presents the key aspects of the research findings. Its main focus is on nonverbal variables affecting the classrooms in the study; however, some discussion of other subjects is required if these nonverbal variables are to be properly understood.

The findings reported here derive primarily from analysis of the film records of classrooms. Some statistics and graphic representations are used in discussion of the research findings. As presented here, they are somewhat simplified and are intended to serve the purpose of illustration and communication. They are never the sole basis for the discussions with which they are associated.

The nature of the written word requires that there be sequential and separate discussion of phenomena that in real life are interlocked and simultaneous. The reader should attempt to keep this reality well in mind while reading these discussions of different factors that were found to be significant. Let us now examine the research.

1. Space and distance

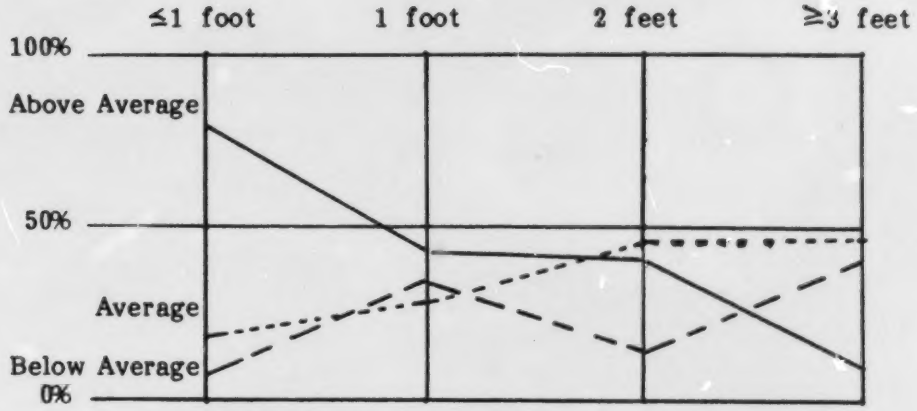
Interpersonal distance was considered important because studies in proxemics have consistently shown interpersonal distance to be a crucial variable in human interactions. There is also substantial evidence that interpersonal distance is situationally and culturally variable (Hall 1959, 1966, 1974). Although interpersonal distance is important in any classroom, it is particularly important in classrooms with culturally different children and staff.

Initial analysis suggested and detailed study confirmed that interpersonal distance was an important variable in the classrooms. During the detailed phase of analysis an attempt was made to arrive at more specific understanding of the patterns of interpersonal distance that were found. The data was studied to determine if there were particular patterns of interpersonal space associated with different variables. The following discussion is intended to define the effects of interpersonal distance in a classroom setting as defined by the analysis.

Two categories of interpersonal distance were examined in the research. Distance between staff and students was one and distance between students was the other. Within each of these categories distance was analyzed in terms of "minimum" and "maximum" interpersonal distance, these being the closest and farthest distance, respectively, between people.

The minimum distance between staff and students was generally three feet or less and the maximum distance was usually between four and ten feet. Students tended to be quite close to each other, the minimum distance between students being less than one foot in two thirds of the units. The maximum distance between the closest students in any group never exceeded three feet. Students tended to clump together rather than spread out. When allowed to define their own spacing after an initial arrangement by staff they would usually move closer together rather than apart.

The most important variable in staff to student distance was the proximity of the closest student to the instructor rather than the distance to furthest student. The quality of interactions between staff and students, as reflected in ratings, was significantly higher in those situations in which some of the children were within two feet of the teacher.



Ratings of units at different minimum distances between staff and children

When the minimum distance between staff and children is small the behavior of the students is different than when the distances are great. Attention to the instructor is more sustained, students are more likely to have communications that concern the lessons, faces are more animated, and there is more participation by students in the activities. They lean toward the instructor, crowd closer together, and move together more as a unit, which is to say that their behavior is more synchronized. Coversely, when distances are greater behavior becomes more disorganized, attention to instructor or to each other is less sustained, there is more wiggling and disruptive behavior, less participation, and there is a tendency for students to withdraw and become passive. Synchrony of movement is less evident or is absent altogether.

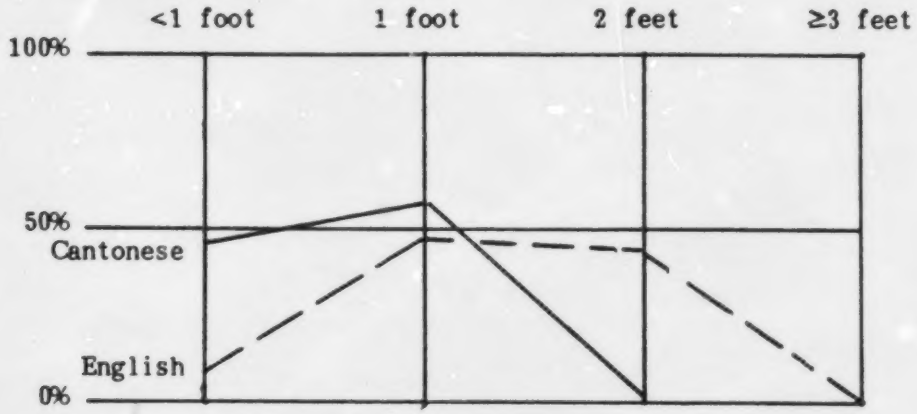
With Chinese American students the crucial distance is in the zero to two foot range. If there are no students in this range the quantity and quality of nonverbal communications, the attention span of students, and the unity of the student group all decline. Similiar patterns were found with regard to the distance between students. Units involving close interpersonal distance rated higher than those in which people were more distant.

Close distances between staff and the nearest students are necessary for effective communication. In the case of Chinese American children the critical distance is two feet or less. Close distance between students appears to be equally important. A minimum distance between students of one foot or less is optimum. Close interpersonal distance between students provides a conduit for instructor interaction with students who would otherwise be too far away.

The distance between instructor and the most distance students is not as crucial, providing there are close spacial connections between intervening students and the instructor is at an optimum distance from the closest students. Teachers could be quite far from the farthest student in these circumstances without adverse results. On the other hand, if they were distant from the closest student or the students were widely scattered from each other then there would be difficulties. Proper use of these variables should give instructors more flexibility in how they arrange their rooms.

Different patterns of interpersonal distance were associated, to a degree, with variations in the language of instruction. Use of

Cantonese was usually associated with closer interpersonal space. This association was most evident when the minimum distance between students in sessions taught in Cantonese was compared to the minimum distance between students in sessions taught in English.



Minimum distance between students in units taught in Cantonese as compared to units taught in English.

As illustrated, all the units involving use of Cantonese had minimum distances between students of one foot or less. In contrast, a significant proportion (42%) of the units taught in English had distances of more than one foot between students. Units that involved use of mixed language were intermediate with regard to interpersonal distance.

Similiar associations were found in examining minimum distance between staff and students. Fully 92% of units taught in Cantonese had minimum distances, between staff and students, of two feet or less. By comparison, 30% of the English language units had distances of more more than two feet between staff and the nearest students.

The association between language and patterns of interpersonal distance may reflect behavioral shifts triggered by changes in language. This possibility is discussed in more detail both in the section of the report that deals with language of instruction and in the conclusions. The fact that use of Cantonese appears to encourage closer interpersonal distance suggests that closer interpersonal distances are characteristic of many interpersonal situations in Chinese American culture. This suggestion is supported by empirical evidence from non-school settings.

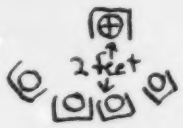
It is clear that the Chinese American students seen in these classrooms responded best in situations in which interpersonal distance was close. School situations with Chinese American children probably can often be improved by moving people closer together. Staff need to be within about two feet of their nearest students. Children generally do best when a significant number of the members of the group are within a foot of each other.

2. Arrangement.

The most common seating arrangements in the classrooms involved students seated, in chairs, at tables or in half circles and semicircles with the teacher in front. What can best be described as "clumps" were also fairly common. Rows of individual desks were quite rare although

some chair and table arrangements appeared to function in the same manner.

The most important finding regarding arrangements is an understanding of some of the promises and problems of single row semicircles and half circles. These were quite common arrangements. The promise of a single row of students arranged in a semicircle is the potential clear line of sight between instructor and students. However, the analysis of the film found significant problems associated with single row semicircles and half circles. These findings suggest that more thought be given to when and how these arrangements are used.



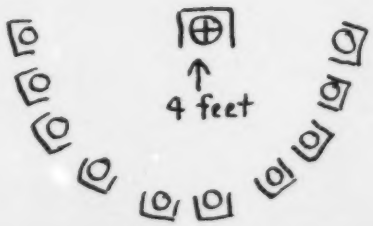
⊕ = Instructor

○ = Student(s)

⊔ = Chair

Typical small semicircle.

The character of communications in semicircles was found to be affected by the number of students as well as the interpersonal distance chosen by the instructor. When the number of students rose above four or five, several results were observed. Distance between teacher and students tended to increase as teachers needed to move further back to have students in a reasonable line of sight. After a point, as the numbers increased the instructors would stop moving back and instead would extend the ends of the semicircle around until a half circle would be formed. Usually instructors started this process when they had moved three to four feet from the students.



⊕ = Instructor

○ = Student(s)

⊔ = Chairs

Large group, grown into half circle.
(Language arts session, second grade.)

The inevitable consequence was that all the students would be distant from the instructor. Students at each end of the semicircle would be out of easy view of the instructor and in a poor position to see what the instructor was doing. The end students' attention would drift while distance between the teacher and the students in front would weaken the communication links in that direction. Teachers were in the position of teaching somewhat distant individuals rather than an interconnected group.

Almost as important were the changes in the character of interactions between students when the number of students in semicircles grew. Interactions would become sporadic short, and not well coordinated on a nonverbal level. There would be little or no sense of group cohesion.

The nature of a semicircle is that adjacent children are only in peripheral visual contact with each other, assuming that their attention is direct toward the instructor. Nonverbal connections between students in semicircle and half circle arrangements are weak in comparison to many other arrangements. In a small group semicircle with three to four students the instructor can provide the link between students but this becomes more difficult as the group grows in size. Individuals become isolated and if their direct connection to the instructor is broken, as it often is, students tend to drift and lose the intensity of their involvements with the activity.

⊕ = Instructor

○ = Students

⊔ = Chairs

"Clump" (Reading, second grade)

In contrast were those instructors who dealt with increase in numbers by shifting to closely packed multiple rows or clumps of students set directly in front of them. Initially, such arrangements would often appear disorganized, as students and staff wiggled around to find mutually compatible positions relative to each other. Once these adjustments were made the result was more sustained attention and involvement on the part of the students than in the superficially neater and more organized semicircles. This was reflected in more sustained eye focus on the activity, a significantly greater degree of nonverbal synchrony between staff and students, and usually more obvious participation from the students in the activities.

Such arrangements were often associated with significant numbers of the students crowding in on each other, by jamming seats together, standing, sitting two to a chair, or on the floor, all with a resulting decrease in interpersonal distance. Instructors in these clump and multiple row arrangements also tended to be much closer to the students than in the case of the formal semicircles.

At issue here is the inter-relationship between arrangement of space and interpersonal distance. Arrangements that increased distance or decreased opportunities for interpersonal contact resulted in less sustained student involovement. The real culprit is not the semicircle, which can work well, but rather the manner in which it grows. Clumps and tight multiple rows tended to be semicircular in their frontal arrangement but usually no more than three or five students would be in a frontal location. The rest would be piled up behind them. The students in front would usually be very close to the teacher and the students would all be close to each other, creating a circumstance in which involvement, interest, as well as whispered comments, could flow easily through the group and between the group and the teacher. Once a teacher hooked into the current the rest would take care of itself, unlike the single row arrangements where the instructor would have to reach each isolated student individually.

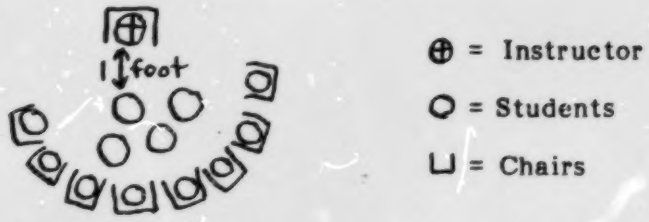
The single row semicircle was not an arrangement that groups of students would set up or maintain when left to their own devices. This in itself is an indicator that it is not a functional arrangement except in specific circumstances. Teachers who asked students to gather around without defining the arrangement inevitably got clumps and/or multiple rows of students.

In one case an aide was filmed teaching Cantonese in the morning to a tight clump of students with the nearest students about one foot away. In the afternoon session she set up a formal semicircle, in a selfconscious attempt to look "good" for the camera. Some fifteen students were arranged in a neat semicircle some five to six feet from the aide and one foot apart from each other in a long single row. Over the period of the lesson, some fifty minutes, this arrangement "disintegrated" into a semi-clump of two to three rows with nearest students two feet away from the aide and all considerably closer to each other. The students were not happy with the arrangement and changed it little by little, edging in inch by inch. Even so, there were occasional difficulties in the session with regard to interactions between the aide and the students at the ends of the row. These difficulties were absent in the morning session and were directly attributable to the attempt at a formal semicircle.

It would seem best to limit single row semicircles to small groups where the instructor can maintain a close interpersonal distance without isolating students to one side or another. While these variables with regard to semicircles are probably applicable to any school setting they are particularly important with Chinese American students. The evidence indicates that close interpersonal distances are associated with better communication and involvement on the part of these students.

There were a number of successful variations on the semicircle in addition to the clumping pattern described above. These involved arranging semicircles of five to six students on chairs with additional students seated on the floor inside the the semicircle. In these cases the teacher would be about four feet from the students in the chairs but quite close to the students inside the circle. Study of these situa-

tions showed a clear tendency for the students in the chairs to cue off the students seated in front of them, in that way being drawn into the activity that the instructor was presenting.



Variation on a semicircle.
(Language arts, second grade.)

One arrangement that never worked involved placing tables or other obstacles inside the semicircle between the instructor and the students. This barrier not only required the instructor to move further back but also placed a barrier between students and instructor that only served to aggravate the problems created by distance and semicircle. Students responded by wiggling, twisting, and paid only sporadic attention to each other or the instructor. Without sound, such sessions did not look like organized activities at all.

Instructors used the table in order to have a place to put curriculum materials, such as large flash cards in ESL, but some instructors solved the problem by sitting in front of the table or by sitting next to small tables at the ends of the semicircle.

3. Pace

Pace is the rate or beat at which people move and carry out their activities. Pace is important because it often determines the potential for other aspects of behavior and communication. Sustained interaction and communication is frustrating or even impossible unless there is some degree of shared pace. The pace at which people operate is shaped by a variety of cultural, situational, and individual influences (Hall 1983).

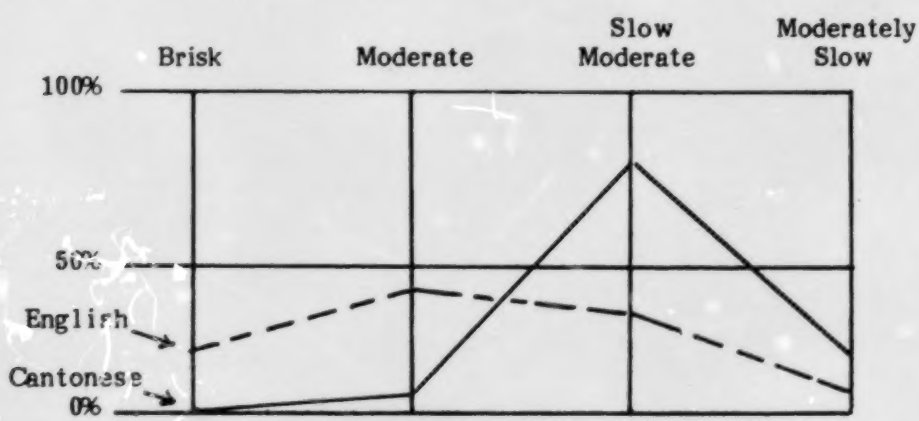
The pace of participants in the classrooms was rated on a relative basis in six steps; slow, moderately slow, slow moderate, moderate, brisk, and fast. No absolute measure of pace was made because micro-analysis was not considered necessary in the larger research design. Relative ratings had proven quite useful in past research. The major concern of the research was with the relative pace of participants.

The pace of the students was generally slow moderate to moderate. The pace of teachers was generally moderate to slow moderate, slightly faster than the students. The pace of aides was more variable but generally similiar to that of the students.

The pace of the staff is not as dramatically different from that of the students as in some other classrooms settings that have been studied. (M. Collier 1979; J. Collier 1973; Byers & Byers, 1973) This finding is significant because it suggests there is greater potential for good student to staff interaction in these classrooms than there would be if pace of staff and student were significantly different.

The analysis found that ratings were highest when teacher and student pace were both in the slow moderate range. Ratings drop significantly with an increase of pace beyond moderate. These patterns were more distinct with regard to aides. Nearly all the units that received lower than average ratings involved aide pace that was moderate or faster while 80% of those with very high ratings involved aide pace that was defined as slow moderate. Units that had faster staff pace were also typified by low levels of sync between staff and students while those with moderate or slower pace had more sync.

Different pace is somewhat associated with different languages of instruction. The pace of teachers is slower in sessions that involve exclusive use of Cantonese as opposed to those in which English or a mixture of the two languages is used. The pattern is more pronounced in the case of the aides.



Pace of aides as related to language of instruction.

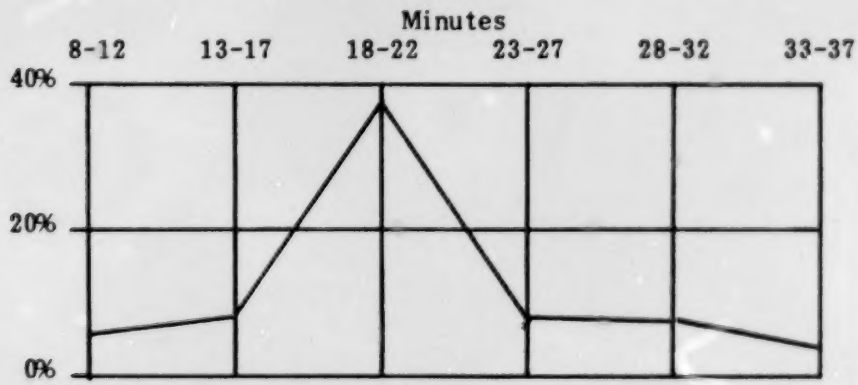
Analysis indicates that slow-moderate pace is associated with the use of Cantonese, significantly that pace is also the dominant pace of the students. This correlation suggests that this pace is the culturally appropriate pace for Chinese children in the school setting. Conversely, the association of English with a somewhat faster pace may also reflect cultural patterns of the wider Anglo society with which English is associated. There is a possibility that the language in use defines a shift in pace that is associated with different cultural patterns.

As with the analysis of space and arrangements, it is clear that a single variable probably cannot itself determine the qualitative character of the classroom situation. There were instances in which staff moved at moderate or slow-moderate pace and yet failed to achieve either synchrony or high evaluative ratings. The research shows that shared staff and student pace is necessary for a reasonable degree of synchrony in interactions. It is also a key ingredient for student involvement. While a particular pace does not itself guarantee good interactions appropriate pace is conducive to such interactions.

4. Time

The use of time is a function of pace on a different level. It involves the manner in which time is organized in the classroom: How long is a lesson? How much time is given to different components? How long do students maintain their involvement? What is their response to different structuring of time by the staff?

The research focused on the length or duration of activities and lessons. Because the analysis already involved identification of units, it was possible to determine time duration by reference to the starting and ending times of units. In most cases this could be done by examining the shots of either begining or ending time slates on each roll or the shots of wall clocks that were routinely made during filming. In other cases begining and ending times were obtained from field notes.

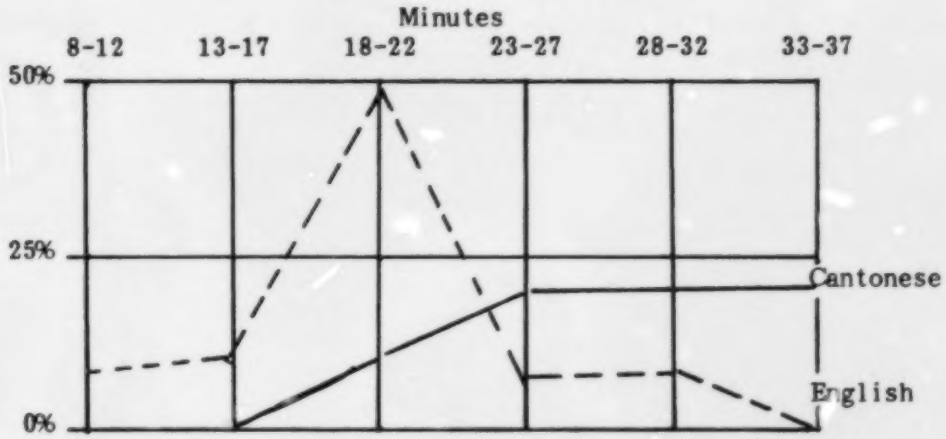


Proportion of all units found in each time frame.

The most common duration for units was 18 to 22 minutes, nearly 40% of all units fell within this time range. Sixty percent fell within 13 to 27 minutes. This pattern is in keeping with earlier observations that the standard American elementary school time frame was twenty minutes. This temporal pattern is shaped by administrative requirements, teacher training, and the available curriculum materials.

Not all units fell within this dominant time range nor was the response of students the same to different time durations of units. Units that rated better than average were less likely to fall in the standard time frame than those that rated average or lower. There was a clear association between somewhat longer time frames for activities and lessons and a higher degree of student involvement. Over 50% of units lasting longer than 27 minutes had above average ratings while less than 10% had below average ratings. The analysis indicates that short time frames often cause difficulties for Chinese American students. Three quarters of low rated units (poor and mediocre) involve time frames of less than 20 minutes, almost the reverse of the pattern for units with higher than average ratings. The division point appears to be 25 minutes, at which point there is no significant differenciation between units with regard to ratings. Twenty minutes might best be seen as the minimum time for classroom activities rather than the optimum, as it appeared to be in the classrooms in the study.

While school structure, training, and curriculum encourage teachers to operate in twenty minute time frames, they are not required to do so. This fact is evident when the association between language of instruction and the time frame of activities and lessons is examined.



Comparison of proportion of English and Cantonese language units found in each time frame.

English language instruction was closely associated with the standard time frame while use of Cantonese in instruction is associated with longer time frames. It is possible that, as in the case of interpersonal distance, the different languages tend to trigger or encourage different behavioral rules with respect to use of time.

Instructors who had experience with education outside of the United States were more likely to use longer time frames for their activities. A number of factors are probably involved here. Unlike their American born and educated colleagues, staff born and educated outside of the United States appeared less inclined to believe that children "have short attention spans", a phrase that is heard recurrently from many Americans. Consequently, they appeared to limit themselves less with regard to time frames for classroom activities.

More important, there was an interconnection between cultural background, structure of lessons, pace, and interpersonal style. This

tended to produce generally longer time frames for units taught by Chinese staff under certain circumstances. There was a tendency to give greater emphasis to contextual preparation prior to becoming involved with what might ordinarily be considered the core of the activity or lesson. This pattern can be seen most clearly by comparison of Cantonese language lessons to English as a Second Language (ESL) lessons.

ESL lessons were usually built around a series of drills or dialogues, often assisted by use of flash cards or other teaching aides. The teacher ran through the dialogue or drill once or twice, followed with group repetition, and then drill individual students from within the group. The focus was on words or structures being practiced rather than on the content of the words or dialogue. For example, a dialogue built around naming farm animals pictured on flash cards was unlikely to involve significant discussion of the characteristics of the animals, how they are raised, or what use they might have. Instead, the focus would be on identifying the picture of the animal with the correct name and pronouncing the word or phase correctly in the context of a properly structured and complete sentence.

In contrast, many Cantonese lessons were built around stories or subjects that were presented as important in themselves as well as being vehicles for introduction and practice of new characters or words. One example involved a lesson built around a story on flying kites, the total duration of which was fifty minutes. Half the time was devoted to discussion and demonstration of the process of making and flying kites before the instructor began with what would be the starting point of most ESL type lessons; the introduction of the new characters and drills in recognition and use thereof. The lesson also involved extensive discussion between students and instructor that ranged from taking about flying kites to the details of particular characters. In detail, this case was unique but many other Cantonese lessons had similiar structural characteristics. Almost all involved some significant degree of placing content in a context.

The time requirements of these different approaches are quite different. ESL lessons can be held within a fifteen to twenty minute time frame but it is difficult to present a lesson involving considerable "contexting" (as did the Cantonese lesson) in a short time period. Those few Cantonese lessons that were short in duration (20 minutes) did not include significant contextual activities. It is not clear, however, that ESL has to be carried out in a short time frame, rather the data suggests that ESL lessons were structured, in part, to fit a predetermined time frame.

Cantonese lessons appeared to require more time, the exact duration of which was variable and dependent on the content of the lesson. In contrast, the ESL lessons started with a time frame and then made a structure to fit it. The overwhelming proportion of units taught exclusively in English involving time frames immediately surrounding 20 minutes is more than suggestive that they were structured to fit a time slot rather than having their time duration determined by content and purpose of the lesson or activity.

This conclusion is consistent with the American cultural involvement with clock time as well as with what some investigators have described as a lack of concern with context in American education (Hall 1974, 1977). The schedule takes priority over almost all other aspects of activities, especially in school settings. Once a short time frame

is chosen, time constraints make it difficult to structure a lesson to include significant presentation of context, particularly when there is little flexibility in the schedule.

In contrast, mixed language and Cantonese language sessions used curriculum that was not altogether in the standard American form. The time frames were more variable, though usually longer than English language sessions, and their time duration appeared more directly related to the content and purpose of the particular session.

It is important that longer time frames were associated with increased synchrony between staff and students as well as with a higher level of nonverbal communication and involvement. While the longer time frame could not be isolated as a the primary variable it interacted with other variables to produce these patterns of behavior. For example, the pace of instructors in the units with longer time frames was slower. The longer time frame may have allowed instructors to relax and slow down slightly as they feel less rushed.

Longer time frames may provide more opportunity for participants to adjust to each other and establish the nonverbal connections that are reflected by synchronized behavior. Lessons or activities that take place in a fast paced, short time frame do not allow as much opportunity for mutual adjustments. They often require the teacher to push the students rapidly from one step to another at a preset pace. Many English language units in the film sample, and the ESL sessions in particular, appeared to be highly pressured processes in which instructors pushed and pushed, never letting up. It appeared that this pressure was the result of both the details of the curriculum and the time frame within which it was designed. In such circumstances students had to hook into the process rapidly, both as individuals and as a group, or were left behind.

This situation was aggravated by curriculum that rapidly required individual responses and by the frequent use of single row semicircles, both of which tended to isolate individual students. Consequently, a student who did not rapidly hook up with the instructor could not readily be drawn into the process through the involvements of other students, since there was little group cohesion.

It might appear that more time devoted to contexting require students to take more time to learn the same material. Such is not necessarily the case. High context communications, once the context is established, often involve very rapid transfer of information (Hall 1974, 1977). Furthermore, learning involves internalization both of details of information and an understanding of its uses. Context is part of what we need to learn. Details of information without context are usually useless and easily forgotten. A good example of this is what happens when we cram for an exam. Details are memorized for the exam but usually forgotten afterwards, in large part because they have no context with which to maintain their integrity and importance in our memory. Quantity of detail is not the measure of either quantity or quality of learning in the classroom.

It is not simply that long time frames are better than short ones. There are units that involve long time frames that do not work just as there are very successful units that have only a short duration. Time is not a determining factor in and of itself, rather it is important in relationship to other variables. The research indicates some cultural connections related to time in these classrooms. Short time frames were clearly associated with Anglo subjects, structures, and processes while

longer time frames appear to be associated with those subjects, structures, and processes that might well have significant connections to Chinese American culture. It is not surprising, given the cultural identity of the majority of the students in the classrooms, that longer time frames were found to be associated with with more fluid interactions in the classrooms. Shorter time frames, to the extent that they disrupted or adversely limited communications in the classrooms were be helpful to the learning process of the Chinese students.

5. Size of Groups

The size of a class and the size of instructional groups within a class are always a concern to educators. There is generally a consensus that small groups are more effective than large ones and that students will respond better to activities that are carried out in small groups. It was assumed that this research would find an association between size of groups and the character of student response; that there would be more student involvement, better communication, and fewer distracted or drifting students in small groups. No such association was found.

The size of groups varied from one or two with an instructor to more than forty five students but most commonly groups were less than 11 students in size. About one third of units involved groups of five or less and another third had six to ten students. There were relatively few units that had groups of 11 to 15 in number because, with the exception of the Cantonese language sessions, most activities that included more than ten students involved the whole class. Such sessions would therefore usually have more than 18 students.

A careful analysis was made of the relationship of group size with a variety of other factors and with the behavioral responses of the students. This analysis found no consistent patterns or associations. The size of groups was not, by itself, a significant variable in the classrooms in the study. Other variables are more important and negate or overshadow the influence of the size of the group.

The research suggests that the size of a group does interact, with other variables, however. The relationship between the number of students in the group and the character of semicircular arrangements was an example of such an interaction. In that case, as described earlier, an increase in the number of students in the group to more than four or five was associated with an increase in interpersonal distance between staff and students IF the instructor insisted on maintaining a single row semicircular arrangement. The crucial factor was therefore not the numbers but rather the response of the instructor to the increase in numbers. When instructors did not insist on maintaining the semicircle arrangement then interpersonal distances did not necessarily increase with an increase in numbers.

Regardless of the numbers of students, the important variables were almost always factors of interpersonal distance, arrangement of space, and use of time. These varied without consistent associations with the size of groups, being shaped instead by decisions of instructors and the requirements of the particular curriculum.

The effects of group size cannot, therefore, be defined from this study because other factors intervene. Small groupings do not necessarily improve the response and participation of Chinese American children. Conversely, evidence in the film record demonstrates that responses and participation can be quite high in groups that would ordinarily be considered too large for good student participation. Open

ended analysis suggests that Chinese children participate more actively in situations involving group interactions or activities rather than in highly individualized processes. Whether there is some size of group that is particularly effective with Chinese children cannot be determined from the data at this time.

Educators should, however, consider more carefully the degree to which different arrangements of space and types of activities are compatible with different sizes of groups. For example, activities that require individual student responses in turn generally did not do well when combined with groups of more than about four in number because the attention of students waiting their turn would tend to drift. The relationship between group size and space in semicircles has already been discussed.

In sum, the findings with regard to size of groups remain somewhat enigmatic. But it would appear that size of groups alone is not as crucial as might be expected.

6. Ethnic mix.

Some attempt was made to examine the effect of the ethnic mix of students on what occurred in the classrooms, with particular attention to the effects on the Chinese students. The results are somewhat preliminary.

On a behavioral level, the Anglo and Black students tended to operate at a slightly faster pace and the style of their movements were more abrupt and linear in character than the Chinese students. More important, but not unrelated, was an apparent need for more personal space on the part of many non-Chinese students. This pattern was one of the reasons why an increase in proportion of non-Chinese students rather quickly lead to their domination of the tone of the classroom. The Anglo and Black students did not appear to make significant adjustments in their behavior to match those of the Chinese students even when the Chinese students were the dominant force in the classroom. This was not true with the few Latino students seen in the film, who showed an interesting tendency to blend their behavior style to match whoever they were with.

Overall, there was little overt friction between students of different ethnic identities while in the classrooms; however, social distance between these students increased with age. This distance was most evident in fifth and sixth grades. The split in the classrooms was between Black and White students on one hand and Chinese students on the other. Latino students appear in intermediate relationship to the these two groupings.

Prior to fourth grade, the response of all students to the school program was fairly uniform except for some tendency on the part of the Anglo and Black students to "tune out" Cantonese related activities. Latino students, on the other hand, tended to be behaviorally indistinguishable from Chinese students during these sessions.

In the upper grades, and particularly in fifth and sixth grades, the rejection of activities related to Cantonese language and culture by a significant proportion of Anglo and Black students became quite overt. Rejection was more extreme in the case of the boys than the girls. Behaviorally this rejection was reflected in lack of attention, withdrawn postures, occasional physical wandering, talking to each other during lessons and, more rarely, disruptive behavior. Hostility was also expressed verbally when the film was shown back to the class.

There were changes in the behavior of the Chinese students in the fourth, fifth and sixth grades as well. They became more passive and withdrawn in general class sessions and were animated and consistently involved only during Cantonese language sessions. Not insignificantly, perhaps, they were separated from the other students during these sessions.

A number of factors probably shape the behavioral patterns just described. In the primary grades the proportion of Chinese students in each class was from 75% to 85% and they clearly set the student tone for the room. In the upper elementary classrooms the proportion of Chinese students was lower, often less than 60% and the tone of the class, on a student level, was heavily influenced by the non Chinese students.

It is probable that the decline in the proportion of Chinese students helps to explain their shift in behavior but the situation is more complicated. As noted earlier, the 4-6 grade classes were held in a school remote from any area with large numbers of resident Chinese and there few Chinese students in the school as a whole. Interview data indicated that the Chinese students, in particular those in the bilingual program, were subject to extensive verbal and physical harassment on the school yard, not infrequently by non Chinese students from the Bilingual classes.

Interview data indicated that Chinese students were often reluctant to speak up in class or take leading roles in activities because when they did so they would often be harassed afterwards outside the classroom by the non Chinese students in the class. The school as a whole, based on interviews with both teachers and students as well as observation, was hostile to the Bilingual program and these attitudes were communicated to to the students.

To make things worse, many of the non Chinese students in the Bilingual classes had not previously been in bilingual classes. They had been put in, for a variety of reasons, to make up for Chinese students who dropped out of the program after third grade when their parents found out they would be moved to another school. It was the belief of some of the bilingual staff that some of these non-Chinese students had been placed in the bilingual classrooms because they were behavior problems that no one else wanted to deal with.

Whatever the case, it was clear in the film records of the upper elementary classes that a significant number of the non-Chinese students did not want the have anything to do with the Bilingual/Bicultural components of the program and their behavior adversely affected the classes. It was reported during interviews that in subsequent years the program was able to make adjustments that resulted in a fairly high retention rate for students from third into fourth grade and that many of the problems seen in the film had declined as the proportion of Chinese students increased and the non-Chinese enrollment was more heavily comprised up of students who had been in the program from first grade on up.

It would appear that the Chinese students do best in situations where the ethnic mix of the class results in a style that more closely matches their own. In these circumstances the Chinese students are active participants in the class activities, often very verbal, and with considerable initiative and involvement. When the proportion of non-Chinese students rises to a point that the other students dominate the classroom the Chinese students tend to withdraw and take on the stereotypic behavior of quiet, passive diligence.

Conversely, many Anglo and Black students appear to have some difficulty in adjusting to circumstances in which they are not dominant and in which English is not always the language of instruction. Their response in these cases is mixed, taking the form of withdrawal or, less frequently, aggressive behavior.

These difficulties were not the whole story, however. It has already been noted that the relations between the different students in the classes were generally relaxed. In discussions regarding the ethnic mix of the classes several of the teachers in the program said that they noted changes in the attitudes of the Anglo and Black students over time. They noted that there was a decline in negative comments about Chinese customs and that non-Chinese students who remained in the program for several years became more involved in the bilingual and bicultural portions of the program. These comments are supported by the film record; the non-Chinese students who did show the most involvement in the bicultural components and with the other students were those that had been enrolled in the program since first grade.

This information suggests that it is possible to form a sound bilingual/bicultural class with a mixture of students providing that the proportion of non-Chinese students does not become too great and there is continuity of enrollment on the part of the non-Chinese students. In such a situation both groups of students would be more likely to benefit from each other than would be the case if the class were all Chinese or heavily non-Chinese.

7. Language of Instruction

Language of instruction was recurrently associated with different patterns of nonverbal variables. The complex interaction between these variables and language makes it difficult to isolate which is the more important. These associations and interactions are, however, important.

The dominant language of the classrooms in the study was English, although almost all the classrooms are part of a bilingual program. Only 8% of the units in the sample involve exclusive use of Cantonese. All of these were Cantonese language lessons. No other subject matter was taught exclusively in Cantonese. Even those sessions that mixed languages used English primarily, although not exclusively.

This reality is somewhat in conflict with the stereotypic image of bilingual programs held by many. It is often believed that bilingual classes are taught primarily in some language other than English. Such viewpoints are absurd and, while other bilingual programs may involve less use of English than was the case here, the evidence demonstrates the fallacy of the stereotype.

The association between language of instruction and nonverbal variables of distance, arrangement, pace, time and size of groups has already been discussed. Other associations were also found. The most important was the association between the language of instruction and the degree of nonverbal synchrony among students and staff.

The use of Cantonese was categorically associated with an increase in sync among students. The greater the use of Cantonese, the higher the degree of synchronization on a nonverbal level. Units involving exclusive use of Cantonese had higher levels of sync than those involving mixed language, and these in turn have a higher level of sync than was found in units which involve instruction only in English.

Similiar patterns of association between language and synchrony were found when examining the nonverbal relationships between staff and

students but with somewhat less distinction between English language units and mixed language units. The relationship between language and synchrony will be discussed in more detail in the synchrony section of the report.

The behavioral response of Chinese students was dramatically different when Cantonese was used. The differences in responses was reflected in the ratings received by units in different languages. While three quarters of the units taught in Cantonese receive above average ratings only 20% of the English language units are rated above average. Units involving a mix of English and Cantonese also rated well.

These figures fail to convey the dramatic difference in the behavior of Chinese students in sessions conducted with some or total use of Cantonese as compared to those taught only in English. While Chinese students were often attentive and well behaved, it was in the Cantonese sessions that involvement, excitement, and participation became evident.

Students remained focused on the instructor or the activity for extended periods of time, leaning forward and following closely. Faces reflected interest, curiosity, questions, answers. Students turned toward each other, pointed at and discussed aspects of the activity. They participated nonverbally and verbally, even making unsolicited communications regarding the subject at hand. They asked questions of instructors, discussed issues with them, interrupted them. Most important, these involvements were sustained and were found repeatedly in different situations and with different instructors.

It should not be assumed that similiar behavior and involvement was never found in sessions conducted solely in English. However, this intense and excited response was atypical of English language sessions while being common in sessions that involved Cantonese. The diligence of the students in the English language sessions tended to disguise the fact that excitement and intense involvement were rare.

What is the significance of these patterns and associations? On one level the answer is clear; if the verbal track is in a language that is more comprehensible to the participants then, logically, this improved verbal communication should be reflected on other communication tracks. But are there other factors at work as well?

The differences in student response cannot be ascribed to language alone. The Cantonese language sessions also have particular characteristics of interpersonal distance, arrangement of space, use of time, structure of curriculum or activities that are generally associated with good student response regardless of language. Sessions involving the use of English with these same characteristics also tended to have good student response. Clearly, improved comprehension will be reflected on a nonverbal level by such phenomena as greater interpersonal synchrony and more student involvement; however, the close association of Cantonese with particular patterns of interpersonal distance, spacial arrangements, and use of time cannot be explained simply as a reflection of improved comprehension.

Does the use of a different language trigger changes in the nonverbal behavior of participants? Do such changes, if present, also serve to improve communication and comprehension? The data suggests that these are likely possibilities. Shifts in language are accompanied by shifts in nonverbal patterns, both of interpersonal character and of general spacial patterns. People may subtly redefine the behavioral rules that apply to a situation when they change languages, in fact the shift in language may create a new situation in which a different set of cultural patterns are applied.

This discussion is complicated by our cultural need for linear explanations. A more accurate approach would be to consider the relationship between language and nonverbal variables and behavior as a circular relationship in which different variables both affect and reflect other variables in a manner that can not be reduced to cause and effect relationships. It is clear that use of Cantonese is associated with an improved level of communication in these classrooms, for whatever reason. This finding is important if we return to one of the basic premises of this research: education and learning require communication. Any variable that is associated with evidence of more fluent interpersonal communications in the classroom must be seen as a positive variable even if the manner in which it operates is not known. The implications of the research finds are clear; use of Cantonese increases the quality of communication in classrooms with Chinese students and increases the potential for successful learning.

8. Interpersonal Synchrony

The importance of sync derives from a close association with circumstances involving high levels of communication. Interpersonal synchrony (sync) appears to be a fairly universal aspect of human interactions although the specific behavior that is synchronized is culturally specific. Conversely, absence of interpersonal synchrony has been found to be closely associated with low levels of effective interpersonal communication. Absence of sync is one of the characteristics of situations in which there are problems in the communication process, particularly in cross cultural circumstances (Byers 1979; Byers & Byers 1973; M. Collier 1979; Barnhardt, C. & Esmailka 1982; Erickson 1975, 1979; Condon & Ogston 1971).

Sync both reflects and affects the character of interactions; this dual character makes it difficult to analyze. This difficulty is aggravated by a host of interlocking variables, not one of which can be clearly identified as the key determinant of sync. Furthermore there are varying degrees of sync, absence of sync, and outright dis-synchrony.

The purpose here is to explore variables affecting sync and the character of sync in the classroom setting.

The film analysis found the degree of sync to be associated with variations in a number of factors including interpersonal distance, use of space, temporal factors, and language. The interactions of these variables with each other determines the degree and character of sync. In presenting the analysis each factor must, to some degree, be discussed separately but they are all interlocked.

The analysis examined sync among the students and sync between students and staff. It was found that a reasonable degree of sync among the students is a necessary prerequisite for sync between staff and students but the reverse is not the case. As might be expected the level or degree of sync among students is generally higher than between staff and students.

Interpersonal distance was found to be perhaps the single most important variable affecting sync. This finding is significant because distance is a variable that can be deliberately changed by staff decisions. Close interpersonal distances were important in the development of sync; increases in distance beyond certain clearly defined points almost always resulted in less sync.

Any minimum interpersonal distance of more than one foot between students was associated with a drop in sync among the students; conversely, distances of less than one foot were associated with increases in sync among students. At the distance of one foot there is no clear association with differing levels of sync, which suggests that this is a neutral distance at which which distance itself is not a significant variable.

The pattern is essentially the same for sync between staff and students except that the neutral distance somewhat greater. Almost three quarters of the units in the sample with high levels of sync between staff and students involved a minimum distance of one foot or less between staff and the nearest student. No high sync unit had a distance of more than two feet between instructor and the nearest student for any significant period of time. The distance from the instructor to the farthest student does not appear to be important PROVIDING the distance between intervening students is close.

There is an association between close student to student distances and higher levels of staff to student sync. Close interpersonal distances among the students, less than one foot, significantly increased the likelihood of sync between staff and students. The actual location of the instructor relative to the students does not appear to be important long as the interpersonal distance remains close. As might be expected, however, most instructors were found in front of the students. It is, however, important that there be no intervening physical barriers that have the effect of increasing interpersonal distance.

It is not surprising that increases in interpersonal distance should have negative results on interpersonal sync. The important findings here are the specifics of distance that work with Chinese students. The crucial distance can be defined as one foot or less between students and two feet or less between staff and students. Greater distances between students tend to reduce levels of sync even when staff to student distance is small.

While close distances were associated with higher levels of sync, they did not always produce it. Situations in which students were isolated from each other and/or the staff by other aspects of the

arrangement of space or the character of the curriculum did not have high levels of sync. This was true even when there was still close interpersonal distance. This reality reflects the complexity both of classroom interactions in general and interpersonal sync in particular. As will be seen, these interactions of factors may explain why small groups did not always display high levels of sync between staff and students while larger groups often did.

Distance and spacial arrangements might best be viewed as factors that affect the POTENTIAL for sync and, ultimately, for better communication in the classroom. If an instructor wishes to create a higher potential for communication the first step is to create a setting that makes sync among the students more likely.

This research indicates that with with Chinese students such a setting, in addition to meeting the requirements of interpersonal distance described above, would involve spacial arrangement in which students can easily see each other as well as the teacher. Consequently, clumped arrangements are generally preferable to single rows. It is not important that all the student be able to see all the other students faces, only that they can see other students easily, even their backs. Chairs, if used should be squeezed together and rigid insistence on sitting "properly" in the chairs is not generally productive. The resulting arrangement will result in situations that appear somewhat disordered on the surface but are in fact more likely to produce high levels both of interpersonal sync and student involvement in the school activity. Neat, well organized arrangements often do not work as well because they tend to isolate students from each other both visually and spacially.

The structure of curriculum, lesson, or activity affects sync both among the students and between them and the staff. Their structure define the the behavioral relationships among staff and students as well as the time frame in which things take place. The pace of instructors may also be affected but apparently not that of the students. In small groups, for example, the structure of the activity would often shift the instructors behavior toward a more individualized relationship with the students. The results as related to interactions between staff and Chinese students were not always positive.

Typically, instructors would deal for a short period of time with first one student and then another without sustained interactions with either individual students or the group as a whole. Such circumstances usually had some sync but very rarely had high levels of sync between staff and children. It is likely that the lack of sustained interactions resulted in insufficient time for the behavior adjustments, necessary for moderate to high level sync, to take place on either an individual or a group level. In contrast, one to one interactions between instructors and single students usually had higher levels of sync than the small groups sessions, probably because they were often more sustained.

Small group activities were often structured to involve shorter time frames. The evidence indicates that units involving shorter time frames and/or requirements for rapid individualized student activities failed to have high levels of sync. None of the units that had full sync among the students were found to have a time frame that fell within the "standard" 16-24 minute time range. All were more than 25 minutes in length and most were more than 30 minutes. Similiar patterns,

although not as extreme, were found with regard to sync between staff and students. Only 15% involve time frames of less than 25 minutes.

The time duration of activities was not, however, a determining factor in and of it self. High levels of sync developed quite early in these longer duration units. This would suggest that there are other factors, associated with longer duration lessons or activities, that assist in the rapid development of sync.

These associated factors include slower staff pace, changes in requirements for student participation, and differences in structure and sequence of content. While staff pace was generally found to be somewhat faster than student pace, in the longer time frames the pace of staff is slower, more closely matching students pace.

Shared pace is a necessity of synchronized behavior as well as being one type of sync behavior itself. There is evidence that the curriculum in the "standard" 16-24 time frame demanded faster pace on the part of the staff and encouraged attempts to demand it of the students. The curriculum in the longer sessions was generally less pressured in a time sense, considerable time was often devoted to preparatory or contexting processes. These sessions usually did not demand individualized participation by students until much later in the lesson than was the case with "standard" curriculum. Instead, there was more emphasis on group processes and the whole activity was usually carried out a a less pressured pace. All of these characteristics may assist the development of sync among the students and with the staff.

This discussion of time has, so far, dealt with the relationship of time to situations with very high levels of sync. Moderate levels of sync were not as closely tied to longer time frames, which may indicate that appropriate distance, spacial, and activity characteristics make it possible to attain reasonable degrees of sync in shorter time frames. The high proportion of units with low levels of sync in the 16-24 minute time frame may reflect the fact that the activities and lessons in that time frame were ones that were most standardized with regard to distance, arrangement of space, and expectations for student participation. Such standardized curriculum, activities, and classroom arrangements, reflecting dominant Anglo cultural patterns of the nation, may be culturally inappropriate for classrooms with Chinese students.

Another factor that affected sync was the location and behavior of secondary staff. This becomes an issue when an instructor leads an activity while other staff position themselves among the children. In such circumstances, the highest levels of sync were found when these secondary staff positioned themselves in a location that did not pull students back from the main instructor. Dynamically, the secondary staff operated as magnets around which groups of students tend to cluster and their location and behavior was crucial in shaping the response of the children to the main instructor.

When secondary staff positioned themselves in midway positions the group would tend to pull closer together as well as closer to the main instructor. Interpersonal distances between students would close up, as would distance between students and the instructor, with generally positive effects on sync and involvement. By closing up the group the secondary staff could also create a situation in which the involvements of the students in front could be transmitted to the students further back. The behavior of these secondary staff was also important, if they paid attention and participated in activities then the students around them would tend to mirror their behavior and participate as well.

In contrast, if secondary staff sit in the rear they tend to pull some of the students back in that direction, if to the side they pull some students to the side. Both rear and side positions tended to have negative affects on sync and student involvement in activities unless these positions were still reasonably close to the main instructor. The negative effects of positions too far to rear or to the side resulted from the fact that these positions tended to break the lines of interactions among the students as well as providing less opportunity for students to mirror staff involvement with the activity.

The importance of secondary staff became most apparent when one on them would leave the group while the session continued. There were often dramatic and sustained declines in synchrony and involvement among the students and with the instructor until they returned. The lesson here is that the position and behavior of secondary staff has effects on the position and behavior of the students and should be exploited to increase student involvement with school activities.

The variables that tend to inhibit sync are essentially the reverse of those that have been discussed. Situations with low levels of sync usually involoved greater interpersonal distances, faster pace, and shorter time frames. Over half the units with little or no sync between staff and students had interpersonal distances, between staff and closest student, of two feet or more and none had distances of less than one foot. With regard to sync among the students, 60% of the units with little or no sync had students separated from each other by distances of two feet. In contrast all the high sync units involved distances between students of one foot or less.

The pace of staff is faster in low sync circumstances and a disproportionate number involve time frames in 16-24 minute time range. The possible structural problems of these "standard" time frame lessons have already been described. By generally encouraging or indeed forcing the instructor to operate at a faster pace these standard activities result in having staff operate at a pace that is incompatible with the basic pace of the students. In both this research and in earlier investigations instructional staff have only minimal effect on student pace, which remains fairly consistent regardless of the pace of the instructor (Collier, 1979). The implication is that if there is to be sync between staff and students it is the staff that has to match their pace to that of the students rather than the reverse. This pacing involves not only the nonverbal or behavioral aspects discussed in this research but also the pace or tempo of verbal communications. In research by other investigators there were indications that sync, on a verbal level of beat or tempo, occured when instructors altered their beat to match that of the students (Barnhardt, C. & Esmailka 1982).

A number of other variables appear to have effects on sync but with a few exceptions these do not appear to be significant in and of themselves but rather are associated with variables already described. One exception is language; there is an increase in sync associated with increased use of Cantonese. This increase is certainly predictable when most of the students speak Cantonese as a first language. Cantonese language sessions that have high sync involve essentially the same patterns of interpersonal distance, spacial arrangement, use of time, and pace that were to be found in other high sync sessions.

The large proportion of units involving use of Cantonese that have high levels of sync would then tend to suggest that use of Cantonese is associated with shift in behavior with regard to these variables that is

more favorable to the development of sync in a classroom with Chinese students. This close association of Cantonese language with specific patterns of distance, space, pace, and time generally associated with high levels of sync suggests that these patterns are linked to Chinese (Cantonese) cultural patterns of interpersonal behavior and interaction.

A second issue is closely related language. A high proportion of the units with low levels of sync involve Anglo staff working with Chinese children. This is predictable and does not suggest that these staff are in any way unskilled or unqualified. Other factors being equal, cultural distance will always tend to make the interpersonal interactions more difficult. The relatively lower levels of sync between Anglo staff and Chinese children was associated with the presence of the negative negative factors described above. This association is consistent with a supposition that these factors are to a degree culturally shaped patterns of behavior that are not appropriate with Chinese students, but which may reflect Anglo cultural patterns. Because some of the variables are subject to deliberate decisions on the part of instructors it is possible that any insturctor could improve their classroom by making appropriate adjustments.

The importance of creating and maintaining sync in the classroom cannot be overstressed. There are connections between high levels of sync and long, intense involvements of students with school activities. Those situations that had characteristics inhibiting sync were also the situations characterized by lack of student involvement, interest, and participation. Those with significantly higher levels of sync among the students and staff were also those in which there was active and verbal participation by the students in the lesson or activity.

Many educators who work with Chinese American students complain that they are not verbal enough and often blame this on cultural inhibitions. This research suggests that the cause may not be cultural inhibitions but rather the manner in which classrooms and curriculum are set up. The outstanding feature of the classrooms seen in this research is the high and verbal participation of the Chinese students. A key to obtaining that participation is the deliberate creation of circumstances in the classroom that tend to increase the potential for high levels of interpersonal synchrony among the students and between them and the staff. This creation would involve conscious manipulation of the factors of distance, space, time, pace, curriculum structure, and staff position that have been described here.

CONCLUSIONS

Mass classroom schooling is a relatively recent cultural innovation in the history of human societies. Its success depends on the interaction of a wide variety factors, only some of which have been examined in this research. For example, good interactional skills are not the only requirements of a good teacher. A teacher must also be able to plan customize curriculum for the particular students, properly evaluate students, get along with parents, and keep administrators happy.

Classrooms are ultimately situations, however, in which people must communicate with each other. If communication is hampered then the learning potential of the classrooms is decreased. If it is enhanced then the potential for learning is increased. This study has focused on some of the factors, primarily nonverbal, that influence the course of interactions and communications in the classroom setting. The implications of the findings fall into two general groupings; those that are specific to the classroom education of Chinese American children and those that are more general in character. Presentation of a discussion of these implications requires some preliminary discussion of some premises and concepts.

1. Basic premises.

From an anthropological perspective, a school or a classroom can be conceived as a "micro-cultural" setting with its own rules and customs. Such a viewpoint of a classroom is based on the idea that behavior is shaped by cultural requirements and expectations that are situationally variable within the larger context of the culture and society. It is these variable situations that can be called micro-cultural settings.

Many investigations of behavior indicate that people follow different behavioral patterns in different situations. When the situation changes there are concurrent changes in behavior reflecting a different set of cultural "rules". If people have not internalized a situational culture for a particular setting their behavior may be unpredictable and confused until they can define which set of situational rules apply. Improper definition of the applicable situational culture can lead to substantial difficulties. Application of this viewpoint to examination of classrooms has important ramifications.

Participants in the classroom, whether cross cultural or totally within one cultural environment follow behavioral patterns defined for that particular micro cultural situation by their own cultural background and experience. As with most aspects of everyday situational culture the participants cannot themselves articulate the full range of cultural "rules" that apply.

Students are acculturated to school situational culture by their peers and to a much lesser degree by the staff. Staff are acculturated to the particular school setting but that acculturation is further shaped by their own previous educational experience both as adults and children.

These cultural patterns are situationally defined. The staff and students in a different setting may alter their behavior to such a degree that they might well shock each other. It follows that if the factors that define situations in the classroom setting are changed sufficiently, the participants may no longer apply the same situational rules. Their behavior may change to relfect the application of a new situational culture.

The most important results of this research effort are those that indicate what factors may be shifted and varied to make subtle or not so subtle changes in people's behavior in interactions. Not all of these involve full redefinition of the situational culture but they all are related to a view of classrooms as micro-cultural settings in which behavior and responses are significantly affected by factors that are situational.

2. Specific Conclusions.

On the specific level the more important results are those that suggest some of the issues that instructors and other school staff might consider as they try to improve the schooling and education of Chinese American children. These conclusions are directed primarily at the elementary level of schooling and not all would necessarily be applicable at higher levels.

Many people, Chinese and Anglo, admire the diligence of Chinese American students but are concerned that they do not always take the initiative in the classroom or become active participants in discussions and other activities. This perceived pattern of behavior is often attributed to cultural influences from home and community that are believed to make the students somewhat inhibited. Some individuals have proposed a variety of "assertivness" training activities for Chinese children and the use of curriculum activities that force students to speak up individually. The assumption of most of these programs is that Chinese students are not normally verbal, innovative, or creative and that they need to be "taught" these skills, while Anglo children are perceived as being this way normally.

This research suggests, to the contrary, that most important determinants of the classroom behavior of Chinese American students are in the school situation itself. The Chinese children seen in the film records of this study were often active, verbal, excited, and not just "passive and diligent". The analysis shows that the circumstances that created this type of behavior on the part of the students were not ones in which students had been forced into individualized, aggressive activities. Indeed, the circumstances that were most effective in producing high levels of participation were those that were often the furthest removed from the standard "American" style of classroom. This fact is not surprising. People are usually less than fully effective participants when they have to operate in an unfamiliar cultural setting. What is important is the definition of some of the factors that can make the classroom a situation that encourages more active participation by the Chinese American children.

The key lies in making the classroom setting compatible with the interpersonal styles of the children and that involves them in activities in a manner that is not incompatible with these styles. Changes in the character of interpersonal distance, arrangement of space, use of time, language of instruction, structure of curriculum, and other variables can lead the students to become more intense, active participants in the school process.

Chinese American students respond best to interpersonal distances in the classroom of one foot or less between students and two feet or less between instructor and nearest children. These are closer distances than are usual in most American classrooms. Spacial arrangements, including seating, have to allow for good nonverbal communication among the students as well as with the staff. The best arrangements are

those that not only have students and staff close in distance, as described above, but also in positions that allow students to readily see both the teacher and other students.

The research found that the standard American curriculum time frame is 18 to 22 minutes. This was not a good time frame for Chinese students. They were generally more comfortable with and responded with greater involvement to activities and lessons that were longer. The time duration of lessons and activities need to become more flexible in character and more functionally related to purpose and content. There will be occasions in which short time frames (less than 20 minutes) will be appropriate but the evidence suggests that longer time frames (more than 25 minutes) are generally to be preferred.

These provide more opportunity for interpersonal adjustments and the inclusion of contextual matters into the curriculum or activity, both of which appear to be important if Chinese students are to be come actively involved in school activities. Longer time frames also allow behavior to be slightly slower paced than is possible with many curriculum materials when forced into a short time frame. Slightly slower behavior pace by instructors would more closely match the personal pace of most Chinese students.

Chinese students responded well to situations that involved a substantial amount of interaction among the students. This finding suggest that curriculum should often deliberately involve group activities.

The students were clearly affected by changes in the language of instruction and responded well to situations that involved use of Cantonese as well as English. The film evidence presents a compelling case for the importance of bilingual activities. The switch to some use of Cantonese changes the behavior of students and, often, staff shift toward forms that were found to be more compatible with the students. Shifts in language appear to be often a most effective means of changing behavior into a more appropriate form.

While these factors have been discussed separately they should be considered as inter-related. Ways in which they integrated with each other have been described earlier but no discussion can apply to all circumstances. It becomes, therefore, important for staff to deliberately consider how changes in spacial arrangements, for example, will affect the distance between people and how changes in the number of participants will further affect these variables in turn. Staff need to become good observers on a nonverbal level and think in integrated terms about the interactions among the variables that have been described here.

None of these suggestions should be seen as absolute nor will they automatically bring good results. There will be occasions in which close distance will not be important or appropriate, when a short time frame will work, when it is important for students to work alone. The point is that decisions need to be deliberately made, rather than reflecting automatic application of standardized forms and activities.

There are other more mundane difficulties that are not always easy to resolve. Teachers have administrative and curricular limitations on their flexibility which are increasing rather than decreasing. Some of the suggestions made here might put individual teachers in some risk of receiving negative evaluations from administrators because their classrooms do not "look right" or because their activities fail to fit within the structural guidelines with regard to time spent on activities

and subject matter. Teachers would also have to restructure some aspects of existing curriculum or make their own, both of which require additional effort and time.

Schools are also faced with parental expectations that can constrict their activities, particularly as parents exert pressure for movement toward more conventional forms during these times of "back to the basics". If the instructor or school attempts to adopt less conventional formats and content it can be anticipated that they will have to formally plan for systematic and ongoing parent education activities so that the parents will understand and approve.

None of these realities should be allowed to overshadow the basic fact that there are changes that could and should be made to improve the education of Chinese students and that the necessary changes lie within the school setting. Such changes had, in fact, been made to some degree in the classrooms seen in this study and the fact that relatively minor changes were often associated with significant differences in student response should encourage such changes.

3. General Conclusions and Implications.

Studies of nonverbal factors affecting classrooms in particular and interactions in general have repeatedly illustrated the degree to which these factors are culturally shaped. Equally important, they have shown that we are often unaware of our behavior patterns and expectations with regard to nonverbal phenomena. Consequently, while we are somewhat prepared for the linguistic and difficulties encountered in cross cultural situations we are not prepared to expect the difficulties that occur on other levels of interactions. As research has uncovered these other factors the inevitable question has arisen regarding the degree to which such cultural patterns can be modified or learned deliberately.

While attempts have been made to "teach" nonverbal systems as one might teach a foreign language the results have been less than impressive because we are only just discovering how these nonverbal systems are different and how they are integrated internally. Considering the difficulties encountered in teaching adults new languages we can anticipate considerable problems in teaching nonverbal communication systems even when we do finally know more of what is in them and how they work.

The more general value of this study derive from the information it provides in how interpersonal distance, spacial arrangements, and temporal factors affect interactions in classrooms with culturally diverse participants. In addition the study suggests some possible means by which adjustments can be made in situationally based behavior by making alterations in variables that define the situational cultural system.

The details of interpersonal distances may be specific to classrooms with Chinese students but the dynamics involved are not so limited. The analysis suggests a number of important features concerning the dynamics of interpersonal distance in classrooms settings. The more important are discussed here.

Ordinarily, the important distance variable in interactions between instructor and students is considered to be the distance between instructor and students. This study found that the distance among the students also has a very significant impact on interactions between instructor and students as well as on the response of students. It appears that appropriate interpersonal distance among the students is a prerequisite for group interaction and response between staff and stu-

dents. The same generalization appears to hold for arrangement of space as well, that the spacial arrangement of students relative to each other affects relations between staff and students.

The dynamics involved in this generalization are related to the fact that the instructor is dealing with a group. Individual students communicate subtle and not so subtle signals to each other regarding involvement, interest and participation. These signals can move freely through a group that appropriately located and distanced with regard to each other. In such circumstances the instructor can involve a few students and through them pull in all the students as they respond to the signals of involvement from those students.

If distance and arrangement are not appropriate, the signals cannot flow easily through the group and unified response is unlikely. In this case the instructor must make strong and successful contact with each and every individual student if they are to make a strong connection with the instructors messages. The load on the instructors is increased as is the likelihood that many students will not become fully involved in the lesson or activity of the moment. The level of communication and ultimately the potential for learning will drop.

The study shows that relatively small changes in interpersonal distances were often associated with major changes in student responses. These changes were often closely associated with changes in arrangements and size of groups. It is clear that arrangements need to be examined in terms of their effects on interpersonal distance and relative location of students to each other as well as in terms of the numbers of people involved.

An astute instructor, working with a new or unfamiliar group of students could deliberately make changes in arrangements and interpersonal distances and observe the resulting responses of the students. Such systematic consideration and experimentation with these variables could be used to define what does and does not work with a particular set of students. School staff should consider these variables consciously and deleberately rather than automatically using forms they have learned without regard to their applicability to the present circumstance.

Another important aspect of the research concerned time as a variable in the classrooms. As described earlier, time was very standardized, to no one's surprise. The evidence suggests that the standardized time frames were not necessarily effective or appropriate. The standard elementary level time frame of around 20 minutes for a lesson or activity clearly reflects not functional requirements but a particular tradition of school culture and administrative requirements. The choice of time frame is generally not related to the subject of instruction or the response of the students but to the clock.

While a different cultural mix of students might have responded better to the common time frame than those in this study, there are still some basic dynamics that argue against the overwhelming use of relatively short time frames in the classroom. People require time to make adjustments to each others pace and movements as well as to become involved in an activity. Effective communication is not likely until such adjustments are made. There are occasions, some of which are to be seen in the film records, in which people make very quick adjustments and become rapidly involved but these are exceptions rather than normal procedure. In particular, if the situation is cross cultural in

character, as in many classrooms, more rather than less time is likely to be needed.

On another level, short time frames (less than 20 minutes) may be ineffective because they require constant shifts of people, chairs, materials, and activities throughout the day. There have to be many transition and organizing periods in which attention and effort is devoted to getting going rather than on the subject or purpose of the lesson or activity. Using the common twenty minute cycle, there will be three such transitions every hour that, over the length of a school day, will be found to take up a considerable amount of time under even the best of circumstances.

Other studies have indicated that 50% of the school day is taken up by such activities in the normal American elementary school (Barnhardt, C. & Esmailka 1982). Film and video studies of Indian teachers in Canada, Alaska, and the Southwest indicate that some Indian teachers spend far less time in this organization type of activity, at least in part because of longer time frames and because they are culturally in tune with their students on a communicational level (Barnhardt, C. & Esmailka 1982; Erickson & Mohatt 1982; M. Collier 1973). Cultural differences are likely to require longer organization times because communications are gnerally more time consuming. In such circumstances, the efficiency of the classroom is scarcely going to be enhanced by use of short time frames.

The common rationale for short time frames in the lower grades is "children have short attention spans". The film evidence in this study and others does not readily support this truism. Given the right circumstances the Chinese children in this study appear to have very long attention spans as did the Navajo children in another school situation which the author has worked (M. Collier 1973). It is probable that attention spans are to a degree shaped by cultural backgrounds as well as by the school experience of the children.

This school experience should not be underestimated. Classrooms are micro cultural settings in which particular situational rules apply, including behavior patterns related to time. If students have been acculturated to a system in which consistently short time frames are the norm it is probable that they will exhibit all the symptoms of short attention spans on those occasions in which the time frame is extended. The reverse is likely to be the case for students who have internalized longer time frame patterns for activities.

These responses will be changed only if the activity is exceptionally interesting or if the students begin to learn new patterns of behavior for that situation. On the other hand if students are exposed to activities whose time frames are more variable then it is likely that their attention span will be more closely related to the character and circumstances of the particular activity. That was the case with the children in this study.

Attention spans are also affected by the particular activity, its content, structure, and presentation. A long lesson can have internal subdivisions that "break up" the activities involved into several stages. These can serve to pull students on, into and through the longer session.

Content, structure, and presentation are related to time frames in other ways as well. Short time frames, as noted, make it difficult to consistently include contextual matter into lessons, except by spreading the presentation of several days. They encourage rapid transitions from

teacher presentation to group practice and finally to individualized activities, discouraging thorough preparation of students. Short time frames also tend to encourage guessing rather than solid knowledge and thought. Skilled guessing is an important skill in taking standardized tests but not necessarily a good way to solve real life problems.

On a behavioral level, short time frames change the range of behavioral possibilities for both staff and students. Pace is speeded up and individual or group needed subverted to the temporal need to "finish". Quality of work and communication is subtly de-emphasized in favor of quantity. The time frame also affects content in subtle and not so subtle ways. This is an important issue in designing bicultural curriculum. If short time frames, with all the characteristics described, are used to present cultural content that in its original form was highly contexted, involved a different pace of activity, and different relations among people, it may questionable whether the resulting curriculum product is really bicultural in character.

These comments should not be seen as suggesting blanket abolition of activities that take place in a short time frame. Quite the contrary, there are many that need only a short time frame and deserve no more. What is suggested is that the time frame be related, functionally, to the purpose of the activity, its content, structure, and to the needs and response of students. These considerations are not the main basis of deciding the time frame of classroom activities in most American schools today, including those in the study. The preoccupation with particular time frames may reflect one aspect of modern American culture but it does not follow that they are functional. It is certain that strict adherence to such temporal patterns will cause difficulty in cross cultural classrooms.

The most intriguing possibilities resulting from this research effort are ones for which the data provides suggestive rather than definitive information. They relate to ways in which changes in the factors defining a situation can be used to redefine the applicable situational culture that participants use to guide their behavior. If behavior, particularly behavior related to interactions and communications, is shaped by situational cultural patterns it follows that deliberate changes in factors that define the situation can be used to change the behavior of staff and students.

As discussed in the section on language, there is some reason to believe that behavioral patterns in the classrooms studied were at least somewhat affected by shifts in language of instruction. It is probable that these changes reflect shifts in the situational culture that was being applied by staff and students. Maybe there are other, equally important, factors that help define the applicable situational culture.

The idea that there are factors that shape classroom processes by defining the situational culture(s) has important implications for teacher training and for curriculum development. These implications are rather broad but the discussion here will be limited to possible effects on communication, interactions, and behavior in cross cultural classrooms.

What may be the factors that define the "situation"? In particular, which of these are susceptible to relatively easy adjustments? Changes in distance, space, and use of time might have effect on how students define the situation and all these variables are subject to conscious decisions by school staff. Conceivably, staff could be taught or could learn to consciously change such factors to improve student

response. This approach would require some degree of behavioral change on the part of staff and a development of cultural self awareness on their part.

While training for such changes is and should continue to be an important part of teacher training it also remains true that this type of "planned culture change" has proved somewhat problematic. The difficulties arise, not doubt, from the fact that distance, space, and time in interactions are shaped by cultural patterns and expectations that are so thourghly internalized that they are slow to change. Might there be additional ways to bring about changes in a situation that might not require the same degree of cultural selfknowledge?

The close association in this study between the use of Cantonese and patterns of interpersonal behavior that were generally found associated with qualitatively better interactions and responses suggests some possibilities. The language in use clearly is one of the factors that defines the cultural patterns that are to apply in an interaction, as any of us who have grown up in multi-lingual settings knows once we give it some thought. Theoretically, a change in language results in a redefinition of the situation so that different a micro cultural systems applies. If the change in language is accompanied by other formal changes, curriculum content being an example, then the redefinition of the situation will be even more likely. Behavioral changes may result.

Just such changes have been reported in another school setting. Administrators, teachers, and parents of schools using some culturally determined Navajo curriculum materials reported that the use of the materials was associated with behavior changes on the part of staff and students. Reportedly, they behaved "more Navajo" and there were long terms effects on behavior in the general school setting if the materials were used throughout the school year. Some schools even reported that classes using the materials were performing "better" on standardized tests (Wallace, Brown, and Collier, 1981). The reports clearly suggested that changes in situationally defined behavior were the result of changes in curriculum.

In this study the consistent association of Cantonese language with behavioral patterns that were identified as characteristic of all situations involving high levels of student response and involvement suggests some similiar possibilities. The issue here is: can changes in staff and student behavior in interactions be accomplished by making changes in curriculum content, structure, or language? If so, then curriculum can be developed to match a particular cultural mix not only in terms of overt content, as is being attempted somewhat already, but also in terms of the interpersonal behavior it encourages in the staff and students. This would open promising possibilities for imporoving cross cultural school because, once developed, curriculum can be mass produced and distributed relatively easily, at least as compared to trying to retrain teachers.

Schools exist and children inherit and acculturate an existing "school culture" from their peers and the staff that defines the appropriate behavior in a variety of school situations. Changes in teachers through training or retraining do not necessarily affect this underlying cultural foundation by themselves. But if changes are made in curriculum, room arrangements, schedules, and similiar variables as well then it may be possible to trigger changes in the definition of the situation so that a new "school culture" might develop over time.

In studies of cross cultural schools and in programs that seek to improve them the tendency has been look at interpersonal relations and curriculum as separate variables as if they were not closely connected. The aim of teacher training, on one level, has often been to try to provide the teachers with interactional skills that will be more culturally effective without attention to the manner in which the character of the curriculum may serve to subvert or assist such efforts. Curriculum, on the other hand, has usually been approached as a content issue with attempts to put in "culturally relevant" subject matter. Little attention has been paid to the form in which curriculum placed is itself a cultural pattern that may shape both the message of the curriculum and the response of students to it. Nor has any significant attention been paid to the manner in which "standard" curriculum might be altered in form and presentation to make it culturally compatible in another setting.

This discussion of situational culture and variables that define them is intended to suggest that interpersonal communication and curriculum are not so separate from each other as we often tend to assume. We need to look at curriculum to determine how it channels and shapes interpersonal relations and possibilities for both staff and students. We know that fine teachers always stretch and alter standard curriculum and create their own as well. We cannot expect all teachers to have the skills or inclinations to do this type of creating successfully any more than we can expect them to make dramatic changes in their interpersonal styles. But if we can combine a more complete awareness of variables that affect classroom interactions with creation of curriculum that is appropriately tailored to match the situation then we may have a means of leading ordinary teachers and students into more productive forms of interaction and response in the classroom setting. It is hoped that the details and speculations presented here will encourage others to consider these issues and make use of them to improve the schooling of all children.

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APPENDIX

UNIT ANALYSIS SHEET
(revised)

1. Film #
2. Location in reel
3. Film time
4. Real time
5. Language
6. Size of group
7. ID Participants

A. Activity

B. Use of space

C. Pace, Children

D. Pace, Teacher/Aides

E. Kinesic style

F. Sync

G. Evaluation of interactions, etc.

H. Additional information as relavant.

CATEGORIES CODED IN UNIT ANALYSIS

Categories for coding:

1. Class ID number
2. Teacher ID code
3. Aide ID code
4. Teacher background code
5. Aide background code
6. Language in use
7. Total number of students
8. Number of students in group
9. Ethnic mix of students
10. Film time, minutes
11. Real time, minutes
12. Grade level
13. Curriculum content
14. Type of activity
15. Interpersonal distance between staff and students, feet
16. Interpersonal distance between students, feet
17. Spacial arrangement
18. Location of instructor
19. Position of instructor
20. Student pace
21. Teacher pace
22. Aide pace
23. Kinesic patterns of students, short descriptive phrase
24. Kinesic patterns of teacher....
25. Kinesic pattern of aide....
26. Synchrony among students
27. Synchrony between staff and students
28. Brief descriptive comment on sync
29. Short evaluation
30. General comment